
NASA

1
00:00:00,506 --> 00:00:26,500
[Beep and music]

2
00:00:29,066 --> 00:00:31,076
>> NASA, one-seven, can
you [inaudible], please?

3
00:00:31,526 --> 00:00:33,396
>> The scene is an arid lake bed

4
00:00:33,396 --> 00:00:37,016
of NASA's Dryden Flight Research
Center near the Mojave Desert

5
00:00:37,016 --> 00:00:37,946
in California.

6
00:00:38,746 --> 00:00:39,566
It's early morning.

7
00:00:40,386 --> 00:00:43,706
Engineers and technicians have
been here since before sun-up.

8
00:00:44,646 --> 00:00:45,876
Check-out and preparations

9
00:00:46,036 --> 00:00:50,206
for the upcoming flight test
are painstaking and deliberate.

10
00:00:50,206 --> 00:00:52,016
This is not an ordinary plane.

11
00:00:52,506 --> 00:00:55,086
It has a scissor-like
design that could prove

12

00:00:55,086 --> 00:00:57,646
to be the shape of
aircraft to come.

13
00:00:58,046 --> 00:01:01,056
Studies indicate that
if the design features

14
00:01:01,056 --> 00:01:04,486
of the oblique wing, as this
25-foot model is called,

15
00:01:04,906 --> 00:01:08,226
were applied to full-sized
jets, it would allow them

16
00:01:08,226 --> 00:01:09,886
to travel faster than sound

17
00:01:09,886 --> 00:01:13,186
without leaving the usual
sonic boom in their wake

18
00:01:13,186 --> 00:01:14,976
and give them increased
fuel economy.

19
00:01:18,276 --> 00:01:20,806
Before the oblique-wing
plane takes off,

20
00:01:20,806 --> 00:01:23,096
a television-equipped
aircraft sweeps over

21
00:01:23,096 --> 00:01:23,866
and scans the flight path.

22
00:01:24,516 --> 00:01:28,216
[Plane engine and

radio transmission]

23
00:01:28,716 --> 00:01:31,046
What the camera sees
will aid this man,

24
00:01:31,346 --> 00:01:33,216
the pilot of the
oblique-wing model.

25
00:01:33,546 --> 00:01:36,866
He actually flies the
plane from inside this van.

26
00:01:37,936 --> 00:01:40,506
Another television
camera mounted in the nose

27
00:01:40,506 --> 00:01:43,896
of the test aircraft lets him
see where the plane's going.

28
00:01:44,906 --> 00:01:47,716
Watch now as the ground
crew start the engine

29
00:01:47,896 --> 00:01:48,906
and launch the oblique-wing
plane.

30
00:01:49,516 --> 00:02:19,066
[Plane engine]

31
00:02:19,566 --> 00:02:22,666
During the flight, researchers
carefully record how the

32
00:02:22,706 --> 00:02:26,176
aircraft responds to a
variety of maneuvers.

33
00:02:26,176 --> 00:02:29,356
They compare these responses
with wind tunnel predictions

34
00:02:29,356 --> 00:02:32,526
to better understand what
the aircraft is doing

35
00:02:32,526 --> 00:02:33,976
and why it's doing it.

36
00:02:34,516 --> 00:02:37,546
[Plane engine]

37
00:02:38,046 --> 00:02:43,676
>> As you can see, the wing
on the aircraft is at an angle

38
00:02:43,676 --> 00:02:48,936
to the fuselage such that
the left-wing points forward

39
00:02:49,976 --> 00:02:51,036
of the aircraft.

40
00:02:51,036 --> 00:02:52,416
A normal airplane, the wings are

41
00:02:52,416 --> 00:02:53,736
at a right angle
from the fuselage.

42
00:02:54,256 --> 00:02:57,186
On this aircraft, the wing
is at an oblique angle

43
00:02:57,226 --> 00:03:00,116
such that the left-wing

points forward

44
00:03:00,116 --> 00:03:01,916
and the right-wing points aft,

45
00:03:02,516 --> 00:03:05,976
and this feature
allows the aircraft

46
00:03:05,976 --> 00:03:07,766
to have much lower
transatlantic drag

47
00:03:08,506 --> 00:03:09,796
than a conventional aircraft,

48
00:03:10,356 --> 00:03:14,176
and for a transatlantic airplane
designed to use this wing,

49
00:03:15,076 --> 00:03:18,646
you would fly it at 100 to 200
miles an hour with the wing

50
00:03:18,996 --> 00:03:19,946
at zero degrees of yaw.

51
00:03:19,946 --> 00:03:22,726
As the speed increases,
the wing yaw is increased.

52
00:03:22,726 --> 00:03:28,896
>> Research has shown that
oblique-winged aircraft compared

53
00:03:28,896 --> 00:03:31,476
to fixed-wing planes
use less fuel

54

00:03:31,476 --> 00:03:34,096
and can reduce sonic
boom levels.

55
00:03:34,676 --> 00:03:37,406
The plane's designer
R.T. Jones says

56
00:03:37,406 --> 00:03:40,776
that using the oblique wing
takes maximum advantage

57
00:03:40,776 --> 00:03:44,066
of wing sweep in a way
that fools the wind

58
00:03:44,066 --> 00:03:47,366
by making it think you're going
slower than you actually are.

59
00:03:48,486 --> 00:03:52,156
The next phase of research could
include a 1,500-pound plane

60
00:03:52,156 --> 00:03:55,146
with a 30-foot wingspan
powered by jet engines.

61
00:03:55,496 --> 00:03:57,146
It would have a pilot on board.

62
00:03:58,116 --> 00:04:01,816
These artists' concepts show how
the oblique wing design might be

63
00:04:01,816 --> 00:04:03,836
applied to transport-type
aircraft.

64
00:04:04,476 --> 00:04:06,186

The wing, of course,
would swing back

65
00:04:06,236 --> 00:04:08,486
to a more conventional
position for landing.

66
00:04:10,716 --> 00:04:12,886
The oblique wing,
a unique design

67
00:04:12,886 --> 00:04:15,526
that may one day allow
planes to fly faster,

68
00:04:15,896 --> 00:04:17,896
quieter, and use less fuel.